Acquisition of a Scanning Electron Microscope

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Recent Activities

Status

This grant provided the resources to establish a core research tool for faculty, students and the middle Tennessee academic and industrial community. The new instrument provides the capability of operating at controlled relative humidity and traditional high vacuum modes and is equipped with an energy dispersive spectrometer. These features offer the TTU community with a broad range of capabilities making it possible to study sensitive cement hydrates and biological samples as well as conduct more traditional metelographic research.

Ongoing Research

- characterization of fly ash
- stoichiometry and microstructure of hydrates from the reaction of blast furnace slag and calcium hydroxide
- characterization of $LaCrO_3$ and $MnCr_2O_4$ coatings on stainless steel
- void growth in Al 20024-T851

The images shown here illustrate very early age hydration products of Portland cement hydrated in situ the microscope. We hope that this new instrument will allow us to discover microstructural and microchemical features of hydration in blended cement systems that incorporate waste materials.